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10/605,500	10/02/2003	Cheng-Chung Shen	ACIP0018USA	2499

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EXAMINER	
SAEED, USMAAN	

ART UNIT	PAPER NUMBER
2166	

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/605,500	SHEN, CHENG-CHUNG	
	Examiner	Art Unit	
	Usmaan Saeed	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-12 and 14-20* is/are rejected.

7)☒ Claim(s) *4 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Receipt of Applicant's Amendment, filed on 6/8/2006 is acknowledged.

Claims 3 and 12 have been amended.

Specification

2. The amended specification was received on 6/8/2006 and is acceptable.

Claim Rejections - 35 USC § 112

3. Applicant submitted amended claims on 6/8/2006; therefore the examiner has withdrawn the 112 rejections for claims 3 and 12.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 6-10, and 15-20 are rejected under 35 U.S.C. 102(e) as being anticipated by **Horvitz et al.** (**Horvitz** hereinafter) (U.S. Patent No. 6,505,167).

With respect to claim 1, **Horvitz** teaches **a method for computerized extracting of scheduling information from a natural language text for automatic entry into a calendar application, the method comprising the following steps:**

"(a) parsing the natural language text to build a dependency tree" as the message text is parsed against typical patterns and assumptions of commonsense language, as engrained in the message understanding model (**Horvitz** Col 9, Lines 46-48). A model, such as a text classification system, is built. Text classification systems are based on technologies for classifying objects based on attributes--these include Support Vector Machines, Bayesian networks, decision trees, and combinations thereof as known within the art, is constructed, based on the feature selection accomplished in 400 (**Horvitz** Col 9, Lines 11-17).

"(b) determining if the natural language text contains scheduling information" as in parsing the message to determine a most precise correct scheduling action to perform, as those of ordinary skill within the art can understand (**Horvitz** Col 9, Lines 27-29). **"by calculating a probability sum for the dependency tree"** as the

method can perform a scheduling action based on the message, upon determining the scheduling probability of the message (**Horvitz** Col 2, Lines 9-11).

"(c) if the probability sum exceeds a predetermined value, extracting scheduling information from the dependency tree and exporting the scheduling information to the calendar application" as the method can perform a scheduling action based on the message, upon determining the scheduling probability of the message. Based on the scheduling probability--defined in one embodiment as the probability a user desires to view a calendar or to schedule an appointment given the information in an email message or other source of text-based information.--the method determines if it should do nothing (i.e., corresponding to a low probability), do something automatically (i.e., corresponding to a high probability), or suggest an action, but do not do it automatically (i.e., corresponding to a medium probability). Thus, embodiments of the invention effectively link scheduling with messaging automatically, when a message has scheduling information contained therein (**Horvitz** Col 2, Lines 9-21).

Claim 10 is essentially the same as claim 1 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 2 **Horvitz** teaches **"the method of claim 1, wherein parsing the natural language text further comprises segmenting each sentence in the natural language text into words, building the dependency tree containing dependency pairs by comparing word pairs in the natural language text with a**

dependency database, and adding the word pairs found in the dependency database as dependency pairs to the dependency tree" as Figure 2 and Figure 6. Figure 2 teaches the parsing of a sentence and then the words from the text are being compared to the list/database of figure 6. After comparison it is adding the words from the list/database of figure 6 to the original model.

With respect to claim 6, **Horvitz** teaches **"the method of claim 1, wherein after extracting scheduling information from the natural language text, the method further comprising computing a value for the scheduling information"** as the method determines if it should do nothing (i.e., corresponding to a low probability), do something automatically (i.e., corresponding to a high probability), or suggest an action, but do not do it automatically (i.e., corresponding to a medium probability). Thus, embodiments of the invention effectively link scheduling with messaging automatically, when a message has scheduling information contained therein (**Horvitz** Col 2, Lines 9-21). In one embodiment, when the system is used in agent mode, the value of the probability, within different ranges of threshold, is used to drive the language usage and gesture of the agent (**Horvitz** Col 14, Lines 20-24).

Claim 17 is essentially the same as claim 6 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 7, **Horvitz** teaches **"the method of claim 1, wherein after extracting scheduling information from the natural language text, the method further comprising sending a confirmation message to a user to confirm the scheduling information"** as first, the method can select inaction--that is, not to perform any scheduling action based on the message. Second, the method can select action, but with user approval--that is, to perform a scheduling action based on the message, but only after receiving confirmation from the user that the method should go ahead and perform the scheduling action. Third, the method can select automatic action--that is, to perform a scheduling action based on the message, automatically, without first receiving confirmation from the user (**Horvitz** Col 6, Lines 58-67).

Claim 18 is essentially the same as claim 7 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 8, **Horvitz** teaches **"the method of claim 1, wherein exporting the extracted scheduling information to the calendar application further comprises sending a confirmation message to the calendar application"** as the embodiment of the invention causes a scheduling entry to be entered in the user's calendar for Thursday, at noon, reading "Lunch with Bob" (**Horvitz** Col 5, Lines 50-52).

Claim 19 is essentially the same as claim 8 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 9, **Horvitz** teaches **"the method of claim 1, wherein the natural language text is a natural language e-mail"** as based on the scheduling probability--defined in one embodiment as the probability a user desires to view a calendar or to schedule an appointment given the information in an email message or other source of text-based information (**Horvitz** Col 2, Lines 11-15).

Claim 20 is essentially the same as claim 9 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 15, **Horvitz** teaches **"the personal organization apparatus of claim 13, wherein when building the dependency database the processor further segments each sentence in the text corpus into words"** as Figure 2 and Figure 6. Figure 2 teaches the parsing of a sentence and then the words from the text are being compared to the list/database of figure 6.

Claim 16 is essentially the same as claim 15 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3,5, 11-12 and14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Horvitz et al.** (U.S. Patent No. 6,505,167) as applied to claims 1-2, 6-10, and 15-20 above, in view of **Dehlinger et al.** (**Dehlinger** hereinafter) (U.S. PG Publication No. 2004/0006547).

With respect to claim 3, **Horvitz** teaches **"the method of claim 2, wherein when building the dependency tree:**

"pairing each word in each sentence in the natural language text with the possible head words in the head word list to form a word pair, wherein if the word pair formed by the word and the possible head word is found in the dependency database, adding the word pair formed by the word and the possible head word as a dependency pair to the dependency tree" as Figure 2 and Figure 6. Figure 2 teaches the parsing of a sentence and then the words from the text are being compared to the list/database of figure 6. After comparison it is adding the words from the list/database of figure 6 to the original model.

Horvitz teaches the element of claim 3, but does not explicitly disclose the step of **"forming a head word list of all possible head words in the sentence that are specified in a master position over the sentence."**

However, **Dehlinger** discloses **"forming a head word list of all possible head words in the sentence that are specified in a master position over the sentence"** as to process a target input text into meaningful search terms, that is, descriptive words, and optionally, word pairs (**Dehlinger** Paragraph 0100). Examiner interprets the descriptive words as headwords.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Dehlinger's** teachings would have allowed **Horvitz** to learn and reasoning reasons about the likelihood of user goals within the text by locating headwords from the text, to identify descriptive word pairs, and to carry out the term matching operations, which are relevant to scheduling information (**Dehlinger** Paragraph 0189).

Claim 12 is essentially the same as claim 3 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 5 **Horvitz** teaches **"the method of claim 2, wherein determining if the natural language text contains scheduling information further comprises, the text corpus containing a plurality of sample natural language texts containing scheduling information"** as the method can perform a scheduling action

based on the message, upon determining the scheduling probability of the message. Based on the scheduling probability--defined in one embodiment as the probability a user desires to view a calendar or to schedule an appointment given the information in an email message or other source of text-based information.--the method determines if it should do nothing (i.e., corresponding to a low probability), do something automatically (i.e., corresponding to a high probability), or suggest an action, but do not do it automatically (i.e., corresponding to a medium probability). Thus, embodiments of the invention effectively link scheduling with messaging automatically, when a message has scheduling information contained therein (**Horvitz** Col 2, Lines 9-21).

Horvitz teaches the element of claim 5, but does not explicitly disclose the steps of **"calculating a probability sum for the natural language text by adding up probabilities for all the dependency pairs in the dependency tree,**

the probability of each dependency pair corresponding to the frequency of the dependency pair in a text corpus."

However, **Dehlinger** discloses **"calculating a probability sum for the natural language text by adding up probabilities for all the dependency pairs in the dependency tree" and "the probability of each dependency pair corresponding to the frequency of the dependency pair in a text corpus"** as the selectivity value of a word in a library of texts in a field is related to the frequency of occurrence of that word in the library, relative to the frequency of occurrence of the same word in one or more other libraries of texts (**Dehlinger** Paragraph 0090). After all of the terms have been considered, the updated list includes each TID (and optionally, associated CID) whose

text has at least one of the search terms, and the total match score for the text having that TID (**Dehlinger** Paragraph 0095). Examiner interprets the total score as addition of probabilities. This overlap is expressed as a match score. By considering all of the content-rich search terms as a whole, the program finds the highest possible match scores, e.g., global maximum word and word-pair overlap (**Dehlinger** Paragraph 0092).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Dehlinger's** teachings would have allowed **Horvitz** to learn and reasoning reasons about the likelihood of user goals within the text by locating headwords from the text, which are relevant to scheduling information. A standard ranking algorithm of **Dehlinger's** would have allowed ranking of the text entries in the updated list of the top ranked matching text by adding the probabilities of the text corpus.

Claim 11 is essentially the same as claims 4 and 5 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 14, Horvitz does not explicitly disclose **"The personal organization apparatus of claim 13, wherein the processor repetitively builds the dependency database until no new dependency pairs are identified."**

However, **Dehlinger** discloses **"The personal organization apparatus of claim 13, wherein the processor repetitively builds the dependency database until no**

new dependency pairs are identified" as the verb-root words included in the dictionary are readily assembled from the texts in a library of texts, or from common lists of verbs, building up the list of verb roots with additional texts until substantially all verb-root words have been identified (**Dehlinger** Paragraph 0108).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Dehlinger's** teachings would have allowed **Horvitz** to learn and reasoning reasons about the likelihood of user goals within the text by locating headwords from the text, which are relevant to scheduling information. A standard ranking algorithm of **Dehlinger's** would have allowed ranking of the text entries in the updated list of the top ranked matching text.

Allowable Subject Matter

6. Claim 4 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Prior art of record fails to teach a combination of elements including if the word pair has a high co-occurrency in the text corpus, determining the head word using a tagged corpus, and checking the validity of the word pair using violation constraints,

wherein the tagged corpus specifies the actual head words for sentences relevant to scheduling information in the text corpus and contains dependencies for all other words with respect to the actual head words, and the violation constraints specify illegal dependency structures;

Response to Arguments

7. Applicant's arguments filed on 6/8/2006 have been fully considered but they are not persuasive.

Applicant argues that Horvitz does not teach **"(b) determining if the natural language text contains scheduling information by calculating a probability sum for the dependency tree."**

In response to the preceding arguments, Examiner respectfully submits that, **Horvitz** teaches **"(b) determining if the natural language text contains scheduling information by calculating a probability sum for the dependency tree"** as the method can perform a scheduling action based on the message, upon determining the scheduling probability of the message (**Horvitz** Col 2, Lines 9-11, Col 7, Lines 1-15, and figure 3 &4).

Further Horvitz also teaches parsing the message to determine a most precise correct scheduling action to perform, as those of ordinary skill within the art can

understand (**Horvitz** Col 9, Lines 27-29). Therefore the message is parsed to determine scheduling information.

FIG. 4 is a flowchart of a method to construct a model utilized to determine a scheduling probability of a message, according to an embodiment of the invention. Therefore scheduling probability is being calculated by constructing/building a model/tree.

Further applicant argues "**statistical measures** are used to determine scheduling information by calculating a probability sum for the dependency tree."

In response to the preceding arguments, Examiner respectfully submits that, this limitation **statistical measures** is not present in the claimed invention of the claim and in the description of the invention.

Further applicant argues that Horvitz does not teach **segmenting each sentence in the natural language text into words and comparing word pairs in the natural language text with a dependency database."**

In response to the preceding arguments, Examiner respectfully submits that, **Horvitz** teaches Figure 2 and Figure 6.

The embodiment of the invention is able to recognize that "Lunch" means about noon in time, and that "lunch on Thursday" in general has a high scheduling probability

(that is, a high probability that the electronic mail relates to a scheduling task) (**Horvitz** Col 5, Lines 59-64).

The domain-specific knowledge can include words and phrases that typically are associated with scheduling-related messages, such as "get lunch," "let's meet," "get together," "this time" "lunch?", etc. A list of such words and phrases that are used in one embodiment of the invention is provided in conjunction with the next method described in this section of the detailed description (**Horvitz** Col 8, Lines 63-67).

In figure 2, word noon is being added to the message.

Applicants arguments regarding claim 4 and 13 are moot since claim 4 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Usmaan Saeed whose telephone number is (571)272-4046. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on (571)272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Usmaan Saeed
Patent Examiner
Art Unit: 2166

Leslie Wong
Primary Examiner

US
August 15, 2006